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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,809	11/02/2001	David Li		3207

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EXAMINER

LEUNG, CHRISTINA Y

ART UNIT	PAPER NUMBER
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2633

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center"><b>Office Action Summary</b></p>	<p><b>Application No.</b></p> <p>10/052,809</p>	<p><b>Applicant(s)</b></p> <p>LI ET AL.</p>	
	<p><b>Examiner</b></p> <p>Christina Y. Leung</p>	<p><b>Art Unit</b></p> <p>2633</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 November 2001.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-13, 18, 19 and 21 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 14 and 20 is/are rejected.
- 7) ☒ Claim(s) 6 and 15-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 17 and 19 are objected to because of the following informalities:

Regarding claim 17, the word “the” (or “said”) should be inserted between “on” and “extractor” in lines 12 of the claim for grammatical reasons.

Regarding claim 19, claim 19 recites “wherein said means further guiding the different light paths...toward a second channel assembly” in lines 1-3 of the claim. Although only one element in claim 18 on which claim 19 depends is called a “means” (a “means for guiding”), Examiner respectfully suggests that Applicants amend the phrase “said means” in claim 19 to “said means for guiding” in order to clarify the element referred to in claim 19. Examiner also respectfully suggests that Applicants amend the phrase “further guiding” to “further guides” for grammatical reasons (so that the claim reads “wherein said means for guiding further guides the different light paths...”).

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4 and 20 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “the second channel assembly” in line 12 of the claim. There is insufficient antecedent basis for this limitation in the claim because the claim does not previously

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recite a second channel assembly. Claims 2-4 depend on claim 1 and are also indefinite for the same reason. Examiner notes that claim 2 also recites “the first and second channel assemblies” in lines 1-2 of the claim.

Claim 20 recites “the second channel assembly in lines 2-3 of the claim. There is insufficient antecedent basis for this limitation in the claim, since claim 18 on which claim 20 depends does not recite a second channel assembly. Examiner respectfully suggests that claim 20 may depend on claim 19 instead.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Lemoff et al. (US 6,198,864 B1).

Regarding claim 5, Lemoff et al. disclose a method of extracting a selected channel from a multiplexed signal stream containing a plurality of channels (Figure 1), the method comprising the steps of:

(1) providing a reflector (the reflector element comprising relay mirrors 30, 32, and 36 shown in Figure 1) and directing the multiplexed signal stream onto the reflector (for example, a multiplexed signal is directed from a filter 20 onto the reflector);

(2) providing a thin film filter (filter 22) which receives the multiplexed signal stream reflected from the reflector and divides the signal stream into the selected channel and remaining channels (column 3, lines 7-22); and

(3) directing the remaining channels of the signal stream onto the reflector (Figure 1 shows how a signal at filter 22 is divided into a selected channel which goes through the filter and a group of remaining channels which are directed back to the reflector element; column 4, lines 59-62).

Regarding claim 7, Lemoff et al. further disclose that the reflector comprises a glass body having a paraboloid surface, and a high reflective layer applied on the paraboloid surface. The reflector disclosed by Lemoff et al. comprises a relay mirror such as relay mirror 32 that has a high reflective layer applied on a paraboloid surface (column 3, lines 29-32); Lemoff et al. also disclose that the relay mirror 32 is glass (column 2, lines 38-44).

6. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Sivarajan et al. (US 5,233,453 A).

Regarding claim 14, Sivarajan et al. disclose a switchable add-drop multiplexer system (Figures 1a-c) comprising:

an optical switch (such as switch 112) adapted to transmit a light from a same source (i.e., from fiber 101) to different positions;

a first channel assembly (waveguides 111) connected to the optical switch to provide a plurality of parallel light paths corresponding to the different positions;

an optical device (lens 160, in the embodiment shown in Figure 1c) configured to converge the parallel light paths into a focal point; and

an optical extractor (the photodetector shown in Figure 1c; column 4, lines 42-45) positioned at the focal point for dropping a signal of a desired wavelength (column 3, lines 65-68; column 4, lines 24-35).

*Allowable Subject Matter*

7. Claims 8-13, 18, 19, and 21 are allowed, although Examiner notes that claim 19 has been objected to for a minor informality.

8. Claims 1-4 and 20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. Claims 6 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (Examiner notes that claim 17 has also been objected to for a minor informality).

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 1-4 and 8-13, the prior art, including Lemoff et al. and Sivarajan et al., does not specifically disclose or fairly suggest a system including the combination of elements and limitations recited in claim 1 or 8, particularly including an optical switch, a first channel assembly, a reflector, and a thin film filter connected in the way recited in claims 1 or 8 and particularly wherein the reflector reflects a multiplexed signal received from the switch and channel assembly and the filter receives the multiplexed signal from the reflector and divides it into an extracted signal and remaining signals which are directed back to the reflector.

Regarding claim 6 in particular, although Lemoff et al. disclose a method of extracting a selected channel including providing a reflector, they do not specifically disclose or suggest the

combination of limitations and steps recited in claim 6 and including all the limitations of claim 5 on which claim 6 depends, particularly wherein the reflector is a concave mirror reflector. Specifically, Lemoff et al. do not specifically suggest providing a (single) concave mirror reflector, directing the multiplexed stream onto the concave mirror, providing a filter which receives the multiplexed stream reflected from the concave mirror and divides the stream into a selected channel and remaining channels, and then directing the remaining channels onto the same concave mirror reflector.

Regarding claims 15-21 in particular, although Sivarajan et al. disclose a system as recited in claim 14, including a switch, a channel assembly, an optical device configured to converge parallel light paths into a focal point, and an extractor at the focal point for dropping a desired wavelength signal, they do not specifically disclose or suggest a second channel assembly opposite to the first channel assembly relative to the focal point and receiving light reflected by the extractor element such as in the combination recited in claim 15, or a filter formed on the extract as in the combination recited in claims 17 and 18, since Sivarajan et al. already disclose filters necessarily arranged elsewhere among the elements in their disclosed structure. Further regarding claim 18, Sivarajan et al. also do not specifically disclose or suggest guiding different light paths toward a filter at different incident angles for dropping the signals with different center wavelengths exclusively according to the different incident angles, respectively.

Buchbaum et al. (US 3,506,834 A) generally disclose a system (Figure 1) including a deflector 12, a channel assembly (the paths in the center of the system shown in Figure 1), and an optical device 16 configured to converge parallel light paths, but the system they disclose is

directed to time-division multiplexed optical signals and does not drop a signal of a desired wavelength.

Ducellier et al. (US 6,707,959 B2) generally disclose a system (Figure 4A) including a concave mirror reflector 120, but they do not disclose providing a thin film filter for receiving a multiplexed stream from the reflector and dividing the stream into a selected channel and remaining channels wherein the remaining channels are directed back onto the reflector.

Tangonan (US 4,274,706 A; Figure 4), Ota (US 5,510,920 A; Figure 27), and Yudin et al. (US 6,434,299 B1; Figure 9) also each generally disclose optical systems including concave reflective grating surfaces, but none specifically disclose or suggest the combination of limitations in the recited claims.

### *Conclusion*

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished



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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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